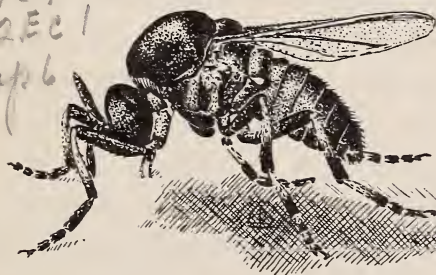


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CONTROL BLACK FLIES



Bureau of
Entomology
and
Plant Quarantine

Agricultural
Research
Administration

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BLACK FLIES are pests of man and animals in various parts of the world. These short-legged flies are about the size of the gnats that one sees on fruit. Because they have a hump on the back, they are often called buffalo gnats.

Black Flies Annoy or Carry Disease

There are many different kinds of these flies--at least 80 in the United States. Some of them fly around people's faces and may bite any exposed part of the body, causing great irritation for several days. They may be an important problem to the Armed Forces when abundant in places where troops are concentrated. They are most troublesome in arctic regions and mountainous areas.

Other kinds annoy livestock and poultry. Livestock may be severely attacked during the outbreaks that occur frequently in the Mississippi Valley.

Some black flies carry diseases. One species transmits a protozoan parasite of ducks. In some parts of the world, particularly in the Tropics, black flies transmit filarial worms that cause a disease of man known as onchocerciasis. This disease may affect the eyes, even causing blindness. The worms may also be found in nodular tumors on the body, especially the head and shoulders. Onchocerciasis of cattle occurs in Australia.

Control of Larvae

Black flies breed in running water, usually in swift streams, but they may also be found in roadside ditches and irrigation canals. The larvae attach themselves to sticks, stones, and other objects in the stream.

You can control these flies by applying a DDT or TDE spray to their breeding places. You can usually do this best with aircraft, because the streams in which the flies breed are often inaccessible, but you can use ground equipment. Treat all streams within 5 miles of the place you wish to protect. One or two treatments may be necessary each season.

You can use either a 5-percent solution of DDT or TDE in fuel oil or a 20-percent solution in equal parts of fuel oil and a suitable solvent such as methylated naphthalene. Adjust the rate of delivery to give 0.025 pound of the insecticide per acre of water surface. Thus, use only one-fourth as much of a 20-percent as of a 5-percent solution. The 20-percent solution is recommended only for application from large aircraft.

You can also use these insecticides in emulsions, but they are more toxic to fish and other aquatic life than are oil solutions. They are therefore recommended only when it is known that the dosage used in relation to the flow rate of the stream will not harm aquatic life.

Application from Aircraft.--A small plane, such as a Stearman PT-17, with spray equipment of the types used for mosquito control, is satisfactory for controlling black fly larvae. Such equipment is usually adjusted to apply 2 quarts of spray solution per acre in swaths about 100 feet wide. If you use a 5-percent spray, this means 0.2 pound of DDT or TDE per acre. However, it is not necessary to treat the entire surface of the stream.

The best way to apply these sprays is to fly the plane across the stream at intervals of about 800 feet. A plane spraying a 100-foot swath would thus make six or seven swaths for each mile of stream. A larger plane, such as a DC-3 (C-47) delivering a 20-percent solution in a 400-foot swath, would make only about two swaths per mile.

Another way to apply the spray is to follow the stream parallel to it, releasing the spray for a distance of about 150 feet and then cutting off delivery for 1,000 feet, and repeating this procedure for the length of the stream. The movement of the water will disperse the insecticide to the untreated portions of the stream. It is more difficult to control the dosage, but this method is better suited for use in terrain where obstructions make it dangerous or impossible to fly across the stream.

Treatment with Ground Equipment.--To control black fly larvae from the ground, apply a 5-percent solution of DDT or TDE in oil to the water surface at about four points in every mile of stream. An ordinary

compressed-air sprayer is satisfactory. Because the width and rate of flow of streams differ widely, it is not practical to recommend definite amounts to apply. However, you can estimate the area of a 1/4-mile sector of the stream, and then apply the solution at each point at the rate of 1/2 pint per acre. This is equivalent to about 0.025 pound of actual insecticide per acre. Allow about 5 to 10 minutes to apply the spray at each point, so that it will not be concentrated in a small portion of the water as it moves down stream.

Control of Adults

Control of adult black flies with insecticides has been successful in some areas, but not in others. DDT-oil sprays applied by aircraft or from the ground by fog machines or mist blowers have given good control in some places. Use enough spray to give 0.2 pound of DDT per acre. It may be necessary to repeat the treatment after a few days to kill black flies that come into the treated area.

Use of Repellents

There are several insect repellents that will protect you from black flies. The most effective are those containing dimethyl phthalate, dimethyl carbate, Indalone, or Rutgers 612. These repellents when applied to the skin or clothing will give protection for several hours, and they are safe to use.

PRECAUTIONS

Wash your hands after using an insecticide.

Do not spray near open fires.

Avoid overdosages of DDT and TDE. Fish and aquatic insects are very susceptible to these insecticides.

Use an insecticide only when you know that it is needed.

Obtain the advice and direction of experienced personnel.

If you have any questions, consult entomologists in your State extension service, experiment station, or college, or write to the Bureau of Entomology and Plant Quarantine, Washington 25, D. C.

III

Prepared by the
Division of Insects
Affecting Man and Animals

The experimental work on which these recommendations are based was conducted for the most part with funds transferred from the Department of the Army to the Bureau of Entomology and Plant Quarantine.

